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## NOTICE OF ALLOWANCE AND FEE(S) DUE

7055 7590 03/03/2004  
GREENBLUM & BERNSTEIN, P.L.C.  
1950 ROLAND CLARKE PLACE  
RESTON, VA 20191

EXAMINER

MAI, HUY KIM

ART UNIT

PAPER NUMBER

2873

DATE MAILED: 03/03/2004

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/960,382	09/24/2001	Hiroshi Nomura	P21186	7525

TITLE OF INVENTION: LENS DRIVE MECHANISM

APPLN. TYPE	SMALL ENTITY	ISSUE FEE	PUBLICATION FEE	TOTAL FEE(S) DUE	DATE DUE
nonprovisional	NO	\$1330	\$300	\$1630	06/03/2004

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE REFLECTS A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE APPLIED IN THIS APPLICATION. THE PTOL-85B (OR AN EQUIVALENT) MUST BE RETURNED WITHIN THIS PERIOD EVEN IF NO FEE IS DUE OR THE APPLICATION WILL BE REGARDED AS ABANDONED.**

### HOW TO REPLY TO THIS NOTICE:

#### I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is the same, pay the TOTAL FEE(S) DUE shown above.

B. If the status is changed, pay the PUBLICATION FEE (if required) and twice the amount of the ISSUE FEE shown above and notify the United States Patent and Trademark Office of the change in status, or

If the SMALL ENTITY is shown as NO:

A. Pay TOTAL FEE(S) DUE shown above, or

B. If applicant claimed SMALL ENTITY status before, or is now claiming SMALL ENTITY status, check the box below and enclose the PUBLICATION FEE and 1/2 the ISSUE FEE shown above.

☐ Applicant claims SMALL ENTITY status.  
See 37 CFR 1.27.

II. PART B - FEE(S) TRANSMITTAL should be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). Even if the fee(s) have already been paid, Part B - Fee(s) Transmittal should be completed and returned. If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.**

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7055 7590 03/03/2004

**GREENBLUM & BERNSTEIN, P.L.C.  
1950 ROLAND CLARKE PLACE  
RESTON, VA 20191**

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**Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being facsimile transmitted to the USPTO, on the date indicated below.

(Depositor's name)
(Signature)
(Date)

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nonprovisional	NO	\$1330	\$300	\$1630	06/03/2004

EXAMINER	ART UNIT	CLASS-SUBCLASS
MAI, HUY KIM	2873	359-694000

**1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).**

- ☐ Change of correspondence address (or Change of Correspondence Address form PTO/SB/122) attached.
- ☐ "Fee Address" indication (or "Fee Address" Indication form PTO/SB/47; Rev 03-02 or more recent) attached. Use of a Customer Number is required.

**2. For printing on the patent front page, list (1) the names of up to 3 registered patent attorneys or agents OR, alternatively, (2) the name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.**

1 \_\_\_\_\_

2 \_\_\_\_\_

3 \_\_\_\_\_

**3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)**

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. Inclusion of assignee data is only appropriate when an assignment has been previously submitted to the USPTO or is being submitted under separate cover. Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE

(B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent); ☐ individual ☐ corporation or other private group entity ☐ government

**4a. The following fee(s) are enclosed:**

- ☐ Issue Fee
- ☐ Publication Fee
- ☐ Advance Order - # of Copies \_\_\_\_\_

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- ☐ A check in the amount of the fee(s) is enclosed.
- ☐ Payment by credit card. Form PTO-2038 is attached.
- ☐ The Director is hereby authorized by charge the required fee(s), or credit any overpayment, to Deposit Account Number \_\_\_\_\_ (enclose an extra copy of this form).

Director for Patents is requested to apply the Issue Fee and Publication Fee (if any) or to re-apply any previously paid issue fee to the application identified above.

(Authorized Signature)

(Date)

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This collection of information is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Alexandria, Virginia 22313-1450.

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7055	7590	03/03/2004	EXAMINER	
GREENBLUM & BERNSTEIN, P.L.C. 1950 ROLAND CLARKE PLACE RESTON, VA 20191			MAI, HUY KIM	
			ART UNIT	PAPER NUMBER
			2873	
DATE MAILED: 03/03/2004				

## Determination of Patent Term Adjustment under 35 U.S.C. 154 (b) (application filed on or after May 29, 2000)

The Patent Term Adjustment to date is 134 day(s). If the issue fee is paid on the date that is three months after the mailing date of this notice and the patent issues on the Tuesday before the date that is 28 weeks (six and a half months) after the mailing date of this notice, the Patent Term Adjustment will be 134 day(s).

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) system (<http://pair.uspto.gov>).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (703) 305-1383. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at (703) 305-8283.

**Notice of Allowability**

Application No.

09/960,382

Examiner

Huy K. Mai

Applicant(s)

NOMURA ET AL.

Art Unit

2873

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the amendment filed Feb. 13, 2004.
2. ☒ The allowed claim(s) is/are 1-8.
3. ☒ The drawings filed on 24 September 2001 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
  - \* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS ( as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review ( PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☐ Information Disclosure Statements (PTO-1449 or PTO/SB/08), Paper No./Mail Date \_\_\_\_\_
4. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413), Paper No./Mail Date \_\_\_\_\_
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other \_\_\_\_\_.

### REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance: It is agreed that neither Sato et al nor Takahashi the linear guide mechanisms that perform the functions of preventing rotations and limiting rotation as claims in claim 1. Sato et al also fails to disclose the limitations "a linear displacement mechanism which integrally moves said first sub-lens group frame and said second sub-lens group frame in the optical axis direction, in said mutually close position and in said mutually distant position". The prior art does not disclose or fairly suggest, by themselves or in combining with any other reference, to meet the limitations as claimed in claim 1. Therefore claims 1-8 could be allowable over the prior art of record.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Huy K. Mai whose telephone number is (571) 272-2334. The examiner can normally be reached on M-F (8:00-4:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Georgia Y. Epps can be reached on (571) 272-2328. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1562.

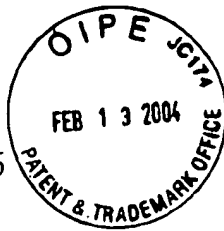
HKM/

February 25, 2004



Huy Mai  
Primary Examiner

P21186.A06



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicants : Hiroshi NOMURA et al.

Group Art Unit: 2873

Appln. No. : 09/960,382

Examiner: H. MAI

Filed : September 24, 2001

For : LENS DRIVE MECHANISM

**REPLY UNDER 37 C.F.R. § 1.116**

Commissioner For Patents  
P.O. Box 1450,  
Alexandria, VA 22313-1450

Sir:

In response to the Final Official Action of November 13, 2003, in which a three-month shortened statutory period for response was set to expire on February 13, 2004, Applicants respectfully request reconsideration and withdrawal of the outstanding rejections set forth in the above-mentioned Official Action in view of the herein contained amendments and remarks.

**Amendments to the Claims** are reflected in the listing of claims that begins on page 2 of this paper.

**Remarks** begin on page 6 of this paper.

AMENDMENTS IN THE CLAIMS

The claims in this listing will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) A lens drive mechanism comprising:

a first sub-lens group frame and a second sub-lens group frame for supporting a first sub-lens group and a second sub-lens group, respectively, said sub-lens groups functioning optically in a mutually close position and in a mutually distant position, with respect to the optical axis thereof;

a support frame for supporting said first sub-lens group frame and said second sub-lens group frame;

a first linear guide mechanism provided between said first sub-lens group frame and said support frame, said first linear guide mechanism guiding said first sub-lens group frame while permitting movement thereof in the optical axis direction and that prevents ~~preventing~~ rotation thereof about the optical axis;

a second linear guide mechanism provided between said second sub-lens group frame and said support frame, said second linear guide mechanism guiding said second sub-lens group frame and that limits ~~while limiting~~ rotation of said second sub-lens group frame at two extremities of rotation thereof over a predetermined angle, and that linearly guides ~~guiding~~ said second sub-lens group frame in the optical axis direction at the two extremities of rotation;

a lens frame shift mechanism for causing said first sub-lens group frame and said second sub-lens group frame to move between to said mutually close position and said

mutually distant position, in accordance with rotation of said second sub-lens group frame between said two extremities of rotation; and

a linear displacement mechanism which integrally moves said first sub-lens group frame and said second sub-lens group frame in the optical axis direction, in said mutually close position and in said mutually distant position;

wherein a guide clearance of said first linear guide mechanism is larger than a guide clearance of said second linear guide mechanism.

2. (Currently Amended) The lens drive mechanism according to claim 1, wherein said first and second sub-lens groups form one of a plurality of variable lens groups for varying a focal length thereof, and said first and second sub-lens groups constitute a focusing lens group which advances or retreats in the optical axis direction while maintaining said mutually close position or at said mutually distant position, regardless of said focal length.

3. (Original) The lens drive mechanism according to claim 1, wherein said lens frame shift mechanism includes a cam surface and a follower provided on opposed surfaces of said first sub-lens group frame and said second sub-lens group frame, said cam surface and the follower being arranged so as to move said first sub-lens group frame and said second sub-lens group frame to said mutually close position and said mutually distant position as said second sub-lens group frame is rotated.

4. (Original) The lens drive mechanism according to claim 3, further comprising:  
a positioning recess formed as a continuation of the opposite ends of said cam surface, said positioning recess defining relative positions of said first sub-lens group



frame and said second sub-lens group frame in the optical axis direction and in the circumferential direction by engaging with said follower when said first sub-lens group frame and said second sub-lens group frame are in said mutually close position and in said mutually distant position; and

a biasing member for biasing said first and second sub-lens group frames to bring said positioning recess and said follower into engagement,

wherein said first sub-lens group frame and said second sub-lens group frame are held together in said mutually close position and in said mutually distant position due to the engagement of said follower and said positioning recess.

5. (Currently Amended) The lens drive mechanism according to claim 1, wherein said first linear guide mechanism comprises:

a plurality of guide bores formed on said first sub-lens group frame at different positions in the circumferential direction; and

a plurality of guide rods loosely fitted in each of said guide bores and secured to said support frame;

wherein said second linear guide mechanism comprises:

a plurality of guide projections formed on said second sub-lens group frame at different positions in the circumferential direction; and

a close-position linear guide slot for said mutually close position and a distant-position linear guide slot for said mutually distant position, said close-position linear guide slot and distant-position linear guide slot being formed on an inner surface of said support frame at different positions in the circumferential direction to slidably receive each corresponding one of said plurality of guide projections.

6. (Original) The lens drive mechanism according to claim 5, wherein a rotation-permitting recess is further formed on the inner surface of said support frame in the circumferential direction, for allowing said guide projections to move between said close-position linear guide slot and said distant-position linear guide slot.

7. (Original) The lens drive mechanism according to claim 1, wherein an actuator ring is rotatably provided in said support frame and is rotated to cause said lens frame shift mechanism and said linear displacement mechanism to operate.

8. (Original) The lens drive mechanism according to claim 7, said linear displacement mechanism includes a cam surface and a follower provided on opposed surfaces of said actuator ring and said second sub-lens group frame, said cam surface and the follower being arranged to move said second sub-lens group frame in the optical axis direction in accordance with rotation of said actuator ring when said second sub-lens group frame is guided by said second linear guide mechanism.